



Allure™ ECW-Sensor Series

Room Temperature Sensors



Overview

The Allure™ ECW-Sensor series are wireless and battery-less room temperature sensors specifically designed to communicate with Distech Controls' Open-to-Wireless™ controllers via radio telegrams in accordance with the EnOcean® standard. All Allure ECW-Sensor models possess an integrated temperature sensor for precision local temperature sensing. In addition, some models feature a rotary knob for setpoint adjustment, fan speed setting, and a push button for occupancy override. All models are powered by solar energy, providing maintenance-free operation and are part of Distech Controls' Open-to-Wireless solution. All models are available for 902, 868, and 315MHz frequency bands, making them compliant for use in most countries. The alluring, slim profile enclosure is suitable for classrooms, hotels, executive areas, office spaces and commercial areas. A separate sub-base allows it to be mounted on any surface with double-sided adhesive tape.

Applications

- Perform building retrofits with minimal impact on architecture and materials.
- Install wireless devices on any surface, such as glass, brick and stone.
- Support open spaces that undergo frequent changes in layout or require seasonal displacement.
- Expand controller input count.

Features & Benefits

- Wireless communication permits the optimization of sensor placement, easy relocation of sensors and switches, removes the need to open walls and extensive installation work
- Available in three models for communication on 902MHz or 868MHz to suit your country or local area's transmission spectrum standards

Optional Batteries

07BAT-ER14250	3.6V Lithium battery (1.2Ah, 3.6V, 1/2 AA).
---------------	---

Model Selection

PDITE-WSEN902X1	Open-to-Wireless battery-less space temperature sensor, EnOcean 902 MHz (Optional battery available).
PDITE-WSENO902X1	Open-to-Wireless battery-less space temperature sensor with override, EnOcean 902 MHz (Optional battery available).
PDITE-WSENS902X1	Open-to-Wireless battery-less space temperature sensor with setpoint cool/warm, EnOcean 902 MHz (Optional battery available).
PDITE-WSENSO902X1	Open-to-Wireless battery-less space temperature sensor with setpoint cool/warm and override, EnOcean 902 MHz (Optional battery available).
PDITE-WSENSOF902X1	Open-to-Wireless battery-less space temperature sensor with setpoint cool/warm, override and fan speed selector, EnOcean 902 MHz (Optional battery available).
PDITE-WSEN868X1	Open-to-Wireless battery-less space temperature sensor, EnOcean 868 MHz (Optional battery available).
PDITE-WSENO868X1	Open-to-Wireless battery-less space temperature sensor with override, EnOcean 868 MHz (Optional battery available).
PDITE-WSENS868X1	Open-to-Wireless battery-less space temperature sensor with setpoint cool/ warm, EnOcean 868 MHz (Optional battery available).
PDITE-WSENSO868X1	Open-to-Wireless battery-less space temperature sensor with setpoint cool/ warm and override, EnOcean 868 MHz (Optional battery available).
PDITE-WSENSOF868X1	Open-to-Wireless battery-less space temperature sensor with setpoint cool/ warm, override and fan speed selector, EnOcean 868 MHz (Optional battery available).

Transmission Ranges

The main factors that influence the system transmission range are type and location of the antennas of the receiver and the transmitter, type of terrain and degree of obstruction of the link path, sources of interference (screening) affecting the receiver, and “Dead” spots caused by signal reflections from nearby conductive objects. Since the expected transmission range strongly depends on the system conditions, range tests should categorically be performed before notification of a particular range that will be attainable by a certain application.

Range is dependent upon many environmental variables that are present in buildings. In normal conditions, a radio signal is transmitted at a maximum range of 100 feet (30 m) at 902 MHz and 868 MHz and a maximum of 32 ft (10 m) range at 315MHz, between the Transmitter (Tx) and Receiver (Rx). In certain cases where there are more obstructions, the range could be decreased. Here are some examples of different types of wireless range reducers:

Material	Range Reduction vs. LoS
Wood, drywall, glass (uncoated, without metal)	0 – 10%
Brick, particle board	5 – 35%
Metal, ferro concrete, mirrors	10 – 90%

Metallic obstructions such as wall reinforcements, machinery, metal office furniture (large filing cabinets), etc. are major sources of field strength reduction, but small metal studs on a gypsum dry wall do not show a recognizable screening. Furthermore, fire-safety walls, elevator shafts, stairwells, and supply areas should be considered as complete transmission screens. In addition, the angle with which the transmission travels through the obstructions has a major influence on the field strength. The steeper the angle through an obstruction the more the field strength dampens. Therefore it is preferable that the transmission should be arranged so that it travels straight and perpendicularly through the obstruction. Wall niches should be avoided as well. Other factors that restrict transmission range include:

Important objects and factors that decrease or constrain coverage:

- Metal separation walls or hollow lightweight walls filled with insulating wool on metal foil
- Inserted ceiling with panels made of metal or carbon fiber
- Steel furniture, glass with metal coating (typically not used indoor)
- Switch mounted on metal surfaces (typically 30% loss of range)
- Metallic switch frames (typically 30% loss of range)

The distance between wireless receivers and other transmitting devices such as computers, audio, and video equipment that also emit high-frequency signals should be at least 20” (50cm).

For more information about the Open-to-Wireless technology, refer to the [Open-to-Wireless Solution Application Guide](#), found on our web site.

Specifications

General

Power Supply _____ Energy harvesting from ambient light
Optional Battery _____ Type ER14250; 1/2AA Lithium 3.6V/1.1Ah

Environmental

- Operating Temperature _____ 5°C to 40°C; 41°F to 104°F
- Storage Temperature _____ -20°C to 57°C; -4°F to 135°F
- Relative Humidity _____ 0 to 95% Non-condensing

Enclosure

Material _____ ABS type PA-765A
Color _____ Off white
Dimensions (overall) _____ 4.62" x 3.29" x 1.58" (117mm x 84mm x 40mm)
Shipping Weight _____ 0.4lbs (0.18kg)
Installation _____ Double-sided foam tape
Wall mounting through mounting holes _____ (see Dimensions for hole positions)

Communications

Communication Protocol _____ EnOcean 4BS Telegram
Power Output _____ 10mW
Communication Frequency _____ Allure ECW-Sensor 315, 868 & 902 MHz

For **868Mhz** model only:

- Center frequency _____ 868.3MHz
- Occupied frequency band _____ 868.0 - 868.6Mhz
- Maximum transmission power _____ 3dBm
- Receiver category _____ Category 2

EnOcean Equipment Profiles (EEP) 315MHz¹

- Allure ECW-Sensor _____ 07-02-05
- Allure ECW-Sensor-O _____ 07-10-0C
- Allure ECW-Sensor-S _____ 07-10-03
- Allure ECW-Sensor-SO _____ 07-10-05
- Allure ECW-Sensor-SOF _____ 07-10-01
- Manufacturer ID _____ 0h009

EnOcean Equipment Profiles (EEP) 868 & 902MHz²

- Allure ECW-Sensor _____ A5-02-05
- Allure ECW-Sensor-O _____ A5-10-0C
- Allure ECW-Sensor-S _____ A5-10-03
- Allure ECW-Sensor-SO _____ A5-10-05
- Allure ECW-Sensor-SOF _____ A5-10-01

Transmit Interval Time _____ 1, 10, 100; Jumper selectable

- Default _____ 10

Wake-Up Cycle Time _____ 1, 10, 100 seconds; Jumper selectable

- Default _____ 100 Seconds

For more information on jumper settings, refer to the [Allure ECW-Sensor Series Hardware Installation Guide](#).

1. From EnOcean Equipment Profiles (EEP) V2.1, EnOcean GmbH.

2. From EnOcean Equipment Profiles (EEP) V2.6, EnOcean GmbH

Specifications (cont'd)

Sensor Data

Temperature Sensor:

- Type _____ Pt1000 (1K Ω @ 0°C; 32°F)
- Sensor Range _____ 0°C to 40°C; 32°F to 104°F, linear
- Value Range _____ 255 to 0
- Accuracy _____ $\pm 0.5^\circ\text{C}$; $\pm 0.9^\circ\text{F}$
- Resolution _____ 8 Bit; 0.15°C; 0.27°F

Occupant Controls Data:

- Occupancy override _____ 1 Bit
- Setpoint adjustment _____ 8 Bit; Linear Potentiometer, 0 - 255
- Fan speed selection _____ 8 Bit; 5-positions:

Position	Value Range
Auto	210 to 255
Off	190 to 209
Fan Speed 1	165 to 189
Fan Speed 2	145 to 164
Fan Speed 3	0 to 144

Electromagnetic Compatibility

Allure ECW-Sensor 902MHz and 315 MHz:

- FCC _____ Complies with FCC rules, part 15.231
- IC _____ RSS-210

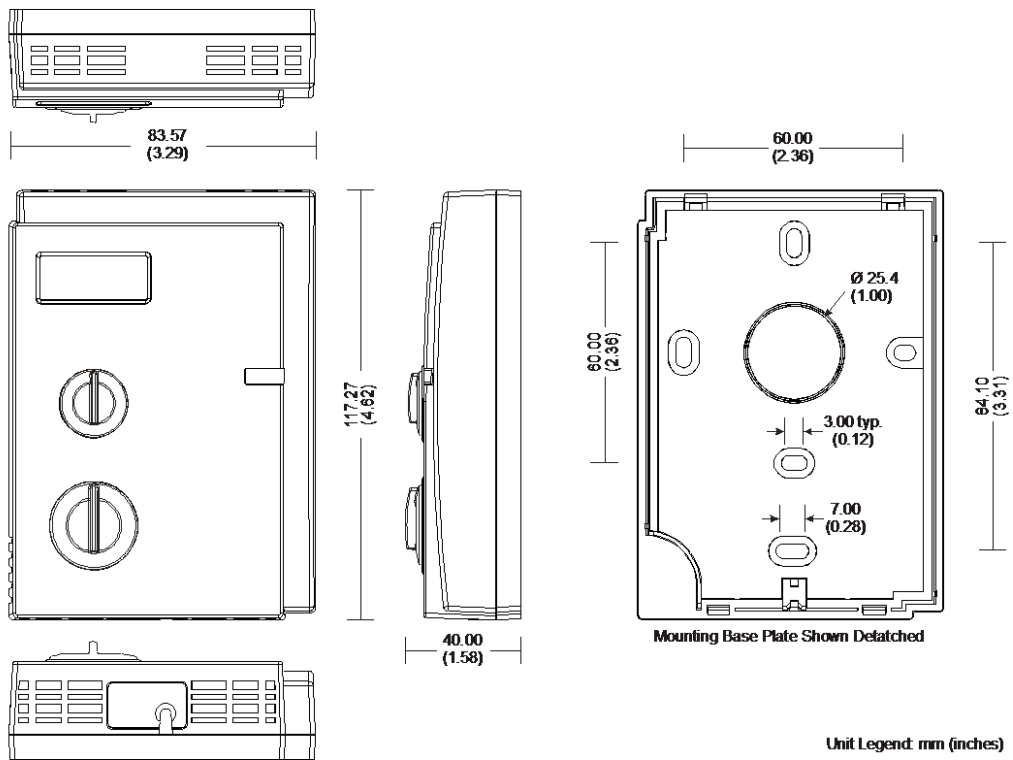
Allure ECW-Sensor 868MHz:

- CE - Directives _____ Electromagnetic Compatibility Directive
_____ 2004/108/EC
_____ Radio and Telecommunications Terminal
_____ Equipment Directive R&TTE 1999/5/EC
- Standards Used _____ ETSI EN 301 489-1: V1.6.1
_____ ETSI EN 301 489-3: V1.4.1
_____ ETSI EN 50 731 : 2002
_____ ETSI EN 300 220-1: V2.1.1
_____ ETSI EN 300 220-2 : V2.1.2
- Recommendation _____ ERC Recommendation 70-03: 2009-02

Agency Approvals

- UL Listed (CDN & US) _____ UL916 Energy management equipment
- Material _____ UL94V-1
- _____ All materials and manufacturing processes comply with the RoHS directive.

Dimensions



Specifications subject to change without notice.
 Distech Controls, and the Distech Controls logo are trademarks of Distech Controls Inc. All other trademarks are property of their respective owner.
 ©, Distech Controls Inc., 2015. All rights reserved.